A study on relationship between NSE INDEX and MCX INDEX

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Abstract

Commodities and equity play a major role in the Indian scenario. Commodities market are still at a nascent stage and have a long way to go . Stock market is an important part of the economy of a country. The stock market plays a play a pivotal role in the growth of the industry and commerce of the country that eventually affects the economy of the country to a great extent. Both of them have a role to play in discovering the price and hedging the risk of the commodities in India. The aim of our research is to determine the relationship between NSE index and MCX index of India. This research provides information which beneficial to investors as well as portfolio managers as they able to gather more information based on the interaction between both markets in the research. This study provides a platform for the investors in taking decision regarding whether to invest in the equity market or commodity market in order to get higher return with less risk

Key words : NSE, MCX

Review of literature

India is heading a phenomenal change in its commodity derivate operations, Forward Market Commission, the so called Regulator of Commodity market in India, since September 28th 2015, merged with Stock market regulator Securities Exchange Board of India. This article is an attempt to compare the operations of stock market with commodity market in India.

(Ankrim, 1993) studied that sharp rises in commodity prices and in commodity investing, many commentators have asked whether commodities nowadays move in sync with traditional financial assets. We provide evidence that challenges this idea. Using dynamic correlation and recursive co integration techniques, we find that the relation between the returns on investable commodity and equity indices has not changed significantly in the last fifteen years

Mauro, 1995) In this research paper they studied that Commodity markets are markets where raw or primary products are exchanged. These raw commodities are traded on regulated commodities exchanges. In order to compare the commodities and stocks we have used MCX index value for the past 4 years, NIFTY/SENSEX index value for past 4 years. Using various mathematical functions on excel we have calculated –Risk, Return, Standard Deviation, Beta, Correlation between the two variables viz. MCX index with Nifty index. Graphs have been used to understand the trends of the stock index and the commodity index

(Bose, 2008) The main purpose of the present study would be to look into some characteristics of the Indian commodity futures market in order to judge whether prices indicate efficient functioning of the market or otherwise, particularly as this market is less developed compared to the financial derivatives markets, being constrained by its cheered history with many policy reversals. Using the available notional price indices for the commodity market we find that multi-commodity indices, which have higher exposure to metals and energy products, with clear and efficient price dissemination in national and international markets, behave like the equity indices in terms of efficiency and flow of information

(Anna Creti, 2012) In their study on "The links between Stock and Commodity Markets Volatility" investigated on links between price returns on 25 commodities and stock over the period from January 2001 to November 2011, by paying a particular attention to energy raw materials. Relying on the dynamic conditional correlation (DCC) GARCH methodology, they stated that the correlations between commodity and stock markets evolve through time and were highly volatile, particularly since the 2007-2008 financial crises.

Black, F. and J. C. Cox, 1976, studied that Portfolio diversification is very important for the investors, especially for financial institutions, such as banks, pension funds. Based on the structure of Synthetic CDO, this paper provides an alternative innovative product, CDCO, which include two inverse correlation products: credit of debt obligations and commodities. The numerical results shown that tranche premium of CDCO, depends on two inverse effects. One effect is the price risk of spot commodity and another is the benefits of diversifying portfolio risk. If the price risk of spot commodity dominates the benefits of diversifying portfolio risk, the tranche premium rises up as commodity numbers increases, whereas the tranche premium reduces as commodity numbers increases

Objectives of the study

-To measure the risk premium of 2 indexes and compare with the performance.

-To understand the relationship between MCX and NSE index for past 5 years.

-To analyze how change in MCX index value affects NSE index value.

Research methodology

This study also provides the investors to know the past performance of both the market from the period of 2011- 2016. From this study the investors can understand the risk and return of both the market for the past 5 years. Its helps the investors to analyze the study and find out the relationship between the market, whether there is positive correlation or negative correlation, and determine the degree of correlation between both the markets. The tools used in this analysis are standard deviation , regression and correlation .

Data Analysis and Interpretation

The data for 5 years are collected and returns are calculated through this formula

Return = $\dfrac{\text{Today's opening price} - \text{Yesterday's closing price}}{\text{Yesterday's closing price}} * 100$

$$SD = \sqrt{\dfrac{\sum (x - \bar{x})^2}{n}}$$

Where,

SD = standard deviation.

Σ = sum of

X = each value in the data set.

 ´ = mean of the value in the data set

n = number of value in the data set.

Table showing standard deviation of NSE for period of 2011-2017.

YEAR	Standard Deviation
2016-2017	2.7871023
2015-2016	0.431331494
2014-2015	0.493225508
2013-2014	0.266123115
2012-2013	0.410063598
2011-2012	1.178794096

Analysis:

From the table it shows that the standard deviation of NSE market for the year2016-2017 the standard deviation is more that is 2.7871023,2015-2016 is 0.431331494, during the year 2014-2015 the standard deviation is 0.493225508, during the year 2013-2014 the standard deviation is 0.266123115, during the year 2012-2013 the standard deviation is 0.410063598, and during the year 2011-2012 the standard deviation is 1.178794096.

Table – 14.1

Table showing standard deviation of MCX for period of 2011-2017

Year	standard deviation
2016-2017	3.1951734
2015-2016	0.814243922
2014-2015	1.139120593
2013-2014	0.705901028
2012-2013	0.427554242
2011-2012	0.754392876

Analysis:

From the above table it shows the standard deviation of MCX market for the period of 2011-2017. From this table it shows that during the year 2015-2016 the standard deviation is very high compare to past years. During the year 2012-2013 the standard deviation is very low compare to past years

RISK PREMIUM

$$Market\ Risk\ Premium = R_m - R_f$$

Table – 27.1

Table showing the comparison risk premium of both NSE and MCX for 6 years

Year	Risk premium of NSE	Risk premium of MCX
2016-2017	-5.60993	-4.21414
2015-2016	-6.533089136	-6.666750236
2014-2015	-10.1153636	-6.357493728
2013-2014	-9.628348338	-8.80477527
2012-2013	-8.900457787	-8.168841609
2011-2012	-6.61388464	-8.420916946

Analysis:

From the table it shows the risk premium of both the NSE and MCX market for the period of 2011-2017. From the above table it is clear that NSE market risk premium is negative and the MCX market risk premium is also negative for all the past 6 years. In the year 2014-2015 the NSE market risk premium is highly negative, and in the year 2013-2014 the MCX market risk premium is highly negative.

Correlation is a statistical measure that indicates the extent to which two or more variables fluctuate together. A positive correlation indicates the extent to which those variables increase or decrease in parallel; a negative correlation indicates the extent to which one variable increases as the other decreases.
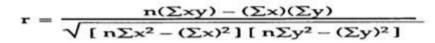
$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[\,n\Sigma x^2 - (\Sigma x)^2\,]\,[\,n\Sigma y^2 - (\Sigma y)^2\,]}}$$

Table – 28.1

Table showing Correlation between NSE and MCX index for period of 2011-2017

Years	Correlation
2016-2017	0.86284676
2015-2016	0.320738349
2014-2015	0.405966207
2013-2014	-0.54293902
2012-2013	0.450263886
2011-2012	-0.296630286

Analysis:

From the above table it shows that in 2015-2016 the correlation between both the markets is 0.320738349, in 2014-2015 there is 0.405966207 degree of correlation, in 2013-2014 there is -0.54293902 degree of correlation, in 2012-2013 there is 0.450263886 degree of correlation, and in 2011-2012 there is -0.296630286 degree of correlation.

Table - 29.1

Table showing the calculation of regression

N=12

$\quad$ ΣX= 0.844192

Mean(x) = Σx/n

=$\quad$ 0.844192/12

=$\quad$ 0.070349

ΣY= 1.570642

$\quad$ N=12

Mean(y) =Σy/n

=1.570642/12

= 0.130887

ΣdxΣdy= -1.8183831

Σdy2= 7.95591797

Bxy(b)=ΣdxΣdy/Σdy2

=$\quad$ -1.8183831/7.95591797

=$\quad$ 0.35183

a =mean(x)-b*mean(y)

=$\quad$ 0.070349-(-0.22855)* 0.130887

=$\quad$ 1.2330367

The equation for regression equation is

Y=a+ bx

Where,

a= 1.2330367

b= 0.35183

So the regression equation will be

x = 1.2330367- 0.35183 y

Interpretation:

X is considered as NSE index and Y is considered as MCX index where X is a dependent variable and Y is independent variable. From the values of NSE and MCX index the regression equation is found as x = 1.2330367- 0.35183 y.

Suggestions

➢ The market participants including regulators can take note of this Project study in understanding / framing appropriate strategies, policies, rules and regulation.

➢ Individual investment strategies can be drawn up as to where can be invested whether in Stock Market and Commodity Market.

➢ Various policies in Indian Stock Market and Indian Commodity market can be arrived at based on findings of this Project study.

➢ Direction of Indian Commodity Market and Indian Stock Market is same; however rate of return of these two markets may vary thus this Project study suggests that further study can be made by considering the findings of this Project study as base.

➢ The investors can invest in the commodity market as there is positive risk premium where this market is secured for the investors for the investment.

➢ In this study it is that commodity market is less volatile than stock market so, if the investor have ability to take risk than he should invest in stock market other wise better to invest in commodity markets.

➢ If we calculate the correlation on the basis of returns of NSE and MCX index it is found some sort of positive and negative correlation which would explain the exit and entry time for an investor in well manner, as well as better time to Hedge which helps us to diversify our portfolio.

➢ It is found that stock market is dependent on commodity market if a slide change came in commodities it hit entire stock market very highly so, if investor is able to take risk he should invest in stock market and vice-versa.

➢ It is found that if market is overbought than it is better from investors prospective to sell that

stock and take short position in market, on the other hand if the market is oversold then it would be the best time to take a long position in market.

Conclusion

The Major conclusion is that there is a positive and healthy relationship between the Indian stock exchange and the commodity market. The commodity market closely follows the stock market and there exists a strong bond between them. Based on findings and suggestions from previous sections, the stake Holders can go through samples of this study and select the market of their preference. As already suggested if there is an upward movement in the commodity market there is an equal amount of rise in the stock market also final conclusion is that both the markets are linked to each other, follow each other closely and relationship is positive in nature

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